

## **ATTACHMENT 3-6**

### **DTTF PREPAREDNESS AND PREVENTION PLAN**

#### **1.0 INTRODUCTION**

This attachment to the Dugway Resource Conservation and Recovery Act (RCRA) Permit discusses preparedness and prevention for the Dugway Thermal Treatment Facility (DTTF) Area required by Utah Administrative Code (UAC) R315-8-3, including equipment and procedures used to prevent or mitigate hazards associated with thermal treatment. This attachment consists of the following sections:

- Design and Operation of the Facility,
- Equipment Requirements,
- Testing and Maintenance of Equipment, and
- Aisle Space Requirements.

#### **2.0 DESIGN AND OPERATION OF THE FACILITY**

The design and operational considerations described in the following sections minimize the possibility of fire, explosion, or any unplanned release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

- Unloading Operations,
- Runoff and Run-on Control,
- Water Supply,
- Equipment and Power Failure,
- Emergency Response Equipment,
- Air Release Prevention, and
- Prevention of Accidental Ignition or Reaction of Wastes.

##### **2.1 UNLOADING OPERATIONS: 40 CFR 270.14(b)(8)(i); R315-3-2.5(b)(8)(i)**

Containers of waste explosives shall be unloaded at the DTTF according to the type of treatment, burning or detonation. Explosive materials shall be unloaded by hand. Waste explosives shall be placed directly on the ground for open detonation (OD) operations or in the burn pan for open burn (OB) operations. Due to the inherent nature of treatment, there are no engineered unloading ramps, docks, or other unloading structures associated with the DTTF.

Vehicles to be loaded for transport of items to the DTTF have their brakes set, motors off, and the wheels chocked, if necessary. Once the vehicle is secured, only those personnel properly fitted in personal protective equipment (PPE) that are involved in the initiation of waste explosive treatment will begin waste unloading. For burn treatment, the cover of the burn pan will be removed, and the interior of the pan will be inspected for any structural defects as well as any residual ash. (Note that residuals should have been removed within 24 hours following the previous burn event.) Waste will be off-loaded and placed in the burn pan (for burn treatment) or on the ground (for detonation treatment). With the off-loading procedures complete, the vehicle(s) are moved to a safe distance and treatment begins.

##### **2.2 RUNOFF AND RUN-ON CONTROL: 40 CFR 270.14(b)(8)(ii); R315-3-2.5(b)(8)(ii)**

OB operations are conducted in a burn pan that acts to contain initiating materials and residual ash. In addition, burn operations are not conducted under adverse weather conditions and the burn pan is kept covered when not in use. Residual ash is promptly collected no later than the day following treatment and placed in satellite accumulation storage in the portable storage magazine located at the entrance to the DTTF. These operational procedures prevent precipitation run-on and also minimize the potential for contaminated runoff or leachate to be generated and to migrate to the soil and/or groundwater.

Due to the inherent nature of treatment, OD operations are conducted on the ground without any form of engineering control devices that will prohibit run-on or contaminated runoff. The logic behind this operational parameter is that such devices would be destroyed under normal treatment operations and that fragments would create a safety hazard to treatment personnel. Following a detonation treatment event, the detonation area is inspected for signs of untreated wastes and scrap metal or other debris. Untreated wastes (e.g., duds) and scrap metal still contaminated with propellants, explosives, and pyrotechnics (PEP) are collected and re-detonated. Scrap metal that is not visibly contaminated with PEP is collected for recycling or disposal.

### **2.3 WATER SUPPLY: 40 CFR 270.14(b)(8)(iii); R315-3-2.5(b)(8)(iii)**

Dugway Proving Ground (DPG) obtains its water from groundwater in the Skull Valley aquifer system and from the aquifer system in the Dugway Valley and Government Creek areas. Due to the impervious composition of the soil on DPG and the depth of the aquifers that provide potable water, it is highly unlikely that any release of hazardous waste would result in damage to the installation's potable water supplies before the release could be contained. Further, all drinking water wells at DPG are equipped with devices to prevent backflow.

### **2.4 EQUIPMENT AND POWER FAILURE: 40 CFR 270.14(b)(8)(iv); R315-3-2.5(b)(iv)**

Treatment operations are not conducted during actual or forecasted electrical storms, when power outages might occur. Power outages not related to electrical storms are not expected to cause problems at the DTTF, because operations at these units do not require electrical power and the area is not supplied with electricity. The detonation of items at the DTTF is usually conducted with hand-cranked blasting machines or non-electrical methods. OB of items does not require any electrical devices.

### **2.5 PERSONAL PROTECTIVE EQUIPMENT: 40 CFR 270.14(b)(8)(v); R315-3-2.5(b)(v)**

Personal protective equipment (PPE) is provided for all facility personnel involved in the thermal treatment of waste explosives to protect them from exposure to hazardous materials. As part of the DTTF Training Plan, Attachment 3-5, all personnel are trained in the proper use, inspection, and maintenance of this equipment. All handling operations and requirements for PPE shall be in accordance with standing operating procedure DP-0000-H-100 (Thermal Treatment, Dugway Thermal Treatment Facility (DTTF): Munitions, Bulk Propellants, and Munitions). The type of PPE to be worn for each type of operation is listed in the standing operating procedure (SOP) for each operation. At a minimum, available PPE should include:

- Face shields,
- Safety goggles or glasses,
- Leather or leather-palmed gloves,
- Steel-toed safety shoes, and

- Coveralls for explosive handlers.

If necessary, required PPE can be obtained from the DTTF Site Manager. The requirements for inspection and the recording of deterioration and malfunctions of PPE are listed in the DTTF Inspection Schedule, Attachment 3-4.

## **2.6 AIR RELEASE PREVENTION: 40 CFR 270.14(b)(8)(vi); 315-3-2.5(b)(8)(vi)**

Strict procedures are in place at DPG to minimize releases to the atmosphere during operations at the DTTF. The permitted types of PEP, as well as the maximum net explosive weight of munitions, have been set for each thermal treatment event. Prior to commencing DTTF treatment, meteorological information must be collected to determine if environmental conditions are appropriate for conducting treatment.

## **2.7 PREVENTION OF ACCIDENTAL IGNITION OR REACTION OF WASTES: 40 CFR 270.14(b)(9), 264.17; R315-3-2.5(b)(9), R315-8-2.8(a)**

Precautions to prevent accidental ignition or reaction of ignitable or reactive wastes shall be taken. These wastes shall be separated and protected from sources of ignition or reaction such as open flames, smoking, cutting, welding, hot surfaces, frictional heat, sparks, static, etc. While ignitable or reactive waste is being handled, smoking and open flame shall be confined to specially designated locations. Precautions taken regarding accidental ignition or reaction of wastes are further described in the sections below.

### **2.7.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes: 40 CFR 270.14(b)(9), 264.17; R315-3-2.5(b)(9), R315-8-2.8(a & b)**

All hazardous wastes handled at the DTTF shall be assumed to be reactive due to their inherent physical characteristics. As such, personnel must take appropriate measures to prevent reactions which:

- Generate extreme heat or pressure, fires or explosions, or violent reactions,
- Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment,
- Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion,
- Damage the structural integrity of the device or facility, and
- Through other like means threaten human health or the environment.

The means to accomplish the aforementioned criteria are provided through the establishment of safety guidelines implemented through the DTTF safety guidelines that include, but are not limited to, the following:

- No smoking is permitted at the DTTF;
- Unauthorized ignition sources (e.g., lighters and matches) are prohibited at the DTTF;
- Explosive material awaiting destruction is stored at a safe distance from explosives being destroyed, and the material is protected against accidental ignition or explosion from fragments, grass fires, burning embers, or detonating impulses originating in the material being destroyed;
- Spark-producing equipment and tools are prohibited from use near explosive materials unless specifically authorized;

- Incompatible materials are not treated or stored in the same locations;
- Each burn pan is grounded by driving a metal stake into the ground and then connecting it to the pan with a metal cable;
- Inspections are performed of hand tools and mechanical devices to ensure that they have not become unsafe for their designated use either to the item or to the operator;
- Motor vehicles used to transport waste explosive ammunition, or other material to the destruction site meet appropriate safety standards; and
- Thermal treatment operations are not conducted during electrical storms.

**2.7.2 General Precautions for Handling Ignitable or Reactive Wastes and Mixing of Incompatible Waste: 40 CFR 270.14(b)(9), 264.17(b); R315-3-2.5(b)(9), R315-8-2.8(b)**

The procedures for handling reactive waste are the same as those discussed in Section 2.7.1. It is unlikely that reactive waste will be mixed while awaiting treatment at the DTTF. Most of the waste PEP is housed in munitions, so the explosive component is physically separated from other waste PEP. Bulk PEP is transported to the DTTF in containers and PEP is not mixed in burn pans prior to treatment.

**2.7.3 Management of Ignitable or Reactive Wastes in Containers: 40 CFR 270.15(c), 264.176; R315-3-2.6(c), R315-8-9.7**

The procedures for managing ignitable or reactive wastes in containers are discussed in the DTTF Waste Analysis Plan, Attachment 3-2.

**2.7.4 Management of Incompatible Wastes in Containers: 40 CFR 270.15(d), 264.177; R315-3-2.6(d), R315-8-9.8**

Incompatible wastes are not placed in the same container.

**2.7.5 Management of Ignitable or Reactive Wastes in Tank Systems: 40 CFR 270.16(j), 264.198; R315-3-2.7, R315-8-10**

Ignitable or reactive wastes are not placed in tank systems at DPG.

**2.7.6 Management of Incompatible Wastes in Tank Systems: 40 CFR 270.16(j), 264.199; R315-3-2.7, R315-8-10**

Incompatible wastes are not placed in tank systems at DPG.

**2.7.7 Management of Ignitable or Reactive Wastes Placed in Waste Piles: 40 CFR 270.18(f), 264.256; R315-3-2.9(f), R315-8-12.4**

Ignitable or reactive wastes are not placed in waste piles at DPG.

**2.7.8 Management of Incompatible Wastes Placed in Waste Piles: 40 CFR 270.18(g), 264.257; R315-3-2.9(g), R315-8-12.5**

Incompatible wastes are not placed in waste piles at DPG.

**2.7.9 Management of Ignitable or Reactive Wastes Placed in Surface Impoundments: 40 CFR**

**270.17(g), 264.229; R315-3-2.8(g), R315-8-11.6**

Ignitable or reactive wastes are not placed in surface impoundments at DPG.

**2.7.10 Management of Incompatible Wastes Placed in Surface Impoundments: 40 CFR 270.17(h), 264.230; R315-3-2.8(h), R315-8-11.7**

Incompatible wastes are not placed in surface impoundments at DPG.

**2.8 MINIMUM DISTANCE REQUIREMENTS: 40CFR 265.382**

To safeguard human health, a minimum set distance shall be observed when conducting DTTF treatments. For thermal events from 101 to 1,500 pounds of PEP, a minimum distance of 1,250 feet should be observed.

**3.0 EQUIPMENT REQUIREMENTS: 40 CFR 270.14(b), 264.32; R315-3-2.5(b)(4), R315-8-3.3**

This section provides information on communications, emergency and other equipment required to support treatment operations at the DTTF in the following sections.

- Internal Communications,
- External Communications,
- Emergency Equipment, and
- Water for Fire Control.

**3.1 INTERNAL COMMUNICATIONS: 40 CFR 264.32(a); 40 CFR 264.34; R315-8-3.3(a), R315-8-3.5**

Personnel working in the DTTF will carry two-way radios or will have immediate access to a radio-equipped vehicle. Active contact is maintained with Range Control during treatment operations to receive clearance for initiation of a DTTF event. Range Control will be notified as personnel leave the DTTF area after treatment operations are concluded. Range Control will initiate a security check if notification is not received after treatment operations are concluded.

A telephone is located on Durand Road, in the vicinity of the DTTF, approximately 500 feet northwest of the turnoff to the treatment unit. Personnel typically retreat to this area during burn events. Personnel typically retreat farther (e.g., to the gate near the Carr Facility) during detonation events. Other telephones are readily available at the Carr Facility.

**3.2 EXTERNAL COMMUNICATIONS: 40 CFR 264.32(b); R315-8-3.3(b)**

Range Control and/or Security will restrict the approach of unauthorized personnel during DTTF operations. At a safe setback distance from the DTTF, facility personnel will set up and maintain a roadblock on Durand Road during treatment operations. In addition, notification of DTTF operations will be made using a raised red flag, flashing red light or other similar means.

DTTF personnel have immediate access to a two-way radio with which they can contact Emergency Response personnel. As a backup, contact with additional emergency response personnel can be made from the telephones on Durand Road or at the Carr Facility.

### 3.3 **EMERGENCY RESPONSE EQUIPMENT: 40 CFR 264.32(c); R315-8-3.3(c)**

As described in the DTTF Contingency Plan, Attachment 3-7, emergency response for the DTTF is provided primarily by the DPG Fire Department and the DPG Health Clinic. Table 2 lists additional emergency response equipment to be maintained by DTTF personnel and inspected prior to each treatment event.

**Table 2. Emergency Response Equipment for the Dugway Thermal Treatment Facility**

Description (frequency)	Location
<u>Emergency Equipment (per OB or OD event)</u> <ul style="list-style-type: none"> <li>• First Aid Kit</li> <li>• Fire extinguisher</li> </ul>	Operator vehicle Operator vehicle
<u>Communications Equipment (per OB or OD event)</u> <ul style="list-style-type: none"> <li>• Two-way Radios</li> <li>• Emergency Telephone</li> </ul>	Operator vehicle Durand Road
<u>Spill Response Equipment (per OB event)</u> <ul style="list-style-type: none"> <li>• Empty Drums with Lids</li> <li>• Shovel</li> <li>• Broom</li> </ul>	90 Day Storage

### 3.4 **WATER FOR FIRE CONTROL: 40 CFR 264.32(d); R315-8-3.3(d)**

DPG has seven fire-fighting vehicles that are maintained at the English Village and Ditto Fire Stations and are capable of responding to incidents at the DTTF immediately. DPG has water at adequate volume and pressure to supply the fire-fighting equipment on the fire-fighting vehicles. This water is stored in storage tanks at English Village, Fries Park, Baker, Carr Facility, Ditto Technical Center, and Avery Technical Center. The storage tanks range in size from 60,000 gallons at Baker Laboratory to 400,000 gallons at English Village.

Portable fire extinguishers are transported to the DTTF during treatment operations. DTTF personnel, however, are instructed not to attempt to fight fires involving PEP wastes or fires resulting from DTTF operations. If fires result, the supervisor at the DTTF will summon the DPG Fire Department to the area.

### 4.0 **TESTING AND MAINTENANCE OF EQUIPMENT: 40 CFR 264.33; R315-8-3.4**

There are no alarm systems, spill control equipment, decontamination equipment, or communication devices located at the DTTF. The two-way radios are inspected and maintained as described in Section 3.3. DPG facility personnel maintain the telephones located on Durand Road and at the Carr Facility.

### 5.0 **aisle space requirements: 40 CFR 264.35; R315-8-3.6**

DPG access roads vary in width from 18 to 30 feet. Primary roads are asphaltic concrete and secondary roads within built-up areas are high- or low-grade bituminous type. Secondary roads within non-built-up operations areas are low-grade bituminous type or gravel. These roads are of adequate width and surfacing to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of installation operation in an emergency.

The DTTF is located in an open, uninhabited portion of DPG that is free of obstruction and does not warrant the establishment of aisles. The DTTF consists of an oval-shaped area that has been cleared of vegetation. Burn pans are widely spaced at the treatment area allowing adequate room for unobstructed movement of personnel and equipment during routine operations or during emergencies. Aisle space with respect to OD treatment is unnecessary due to the nature of detonation operations. All energetic materials undergoing detonation are placed in an open area of the DTTF away from any structures.

#### **6.0 ARRANGEMENTS WITH LOCAL AUTHORITIES: 40 CFR 264.37; R315-8-3.7**

Law enforcement, fire, and emergency response teams are located at DPG and are familiar with the layout of the installation, properties of hazardous wastes at the installation, entrances and exits, and evacuation routes from the facility. These local authorities are designated as the primary response teams for any incidents at the DTTF.

#### **7.0 REFERENCES**

CFR (Code of Federal Regulations) Title 40, Part 264. Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.

CFR Title 40, Part 270, EPA Administered Permit Programs: The Hazardous Waste Permit Program.

UAC (Utah Administrative Code) R315-1 to R315-14, Utah Hazardous Waste Rules.